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CLAIMS:

1. A solvent extraction process that includes operating the process using an organic solvent that contains a non-ionic extractant and a conductivity enhancer that increases the electrical conductivity of the solvent to reduce build-up of static electricity in the process and thereby reduce the electrostatic discharge hazard of the solvent to an adequate fire safety level.
- 10 2. The process defined in claim 1 includes adding conductivity enhancer continuously or periodically during the course of the process and maintaining the electrical conductivity of the solvent above a minimum level.
- 15 3. The process defined in claim 2 includes controlling the amount of the conductivity enhancer added to the process by monitoring the electrical conductivity of the solvent in the process and adjusting the amount of the conductivity enhancer added to the process to maintain the electrical conductivity above a minimum level.
- 20 4. The process defined in any one of the preceding claims for extracting a metal, such as copper, includes maintaining the electrical conductivity of the solvent at or above 100 pS/m.
- 25 5. The process defined in claim 4 includes maintaining the electrical conductivity of the solvent at or above 150 pS/m.
- 30 6. The process defined in claim 5 includes maintaining the electrical conductivity of the solvent at or above 250 pS/m.
- 35 7. The process defined in claim 6 includes maintaining the electrical conductivity of the solvent at

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350 pS/m.

8. The process defined in claim 7 includes maintaining the electrical conductivity of the solvent at  
5 500 pS/m.

9. The process defined in any one of the preceding claims wherein the conductivity enhancer is a reagent that contains 10-20% toluene, 60-70% kerosene, and 2-7% solvent  
10 naphtha, and 2-8% DBSA (dodecylbenzenesulphonic acid).

10. The process defined in any one of claims 2 to 9, wherein the conductivity enhancer is a reagent that contains 10-20% toluene, 2-8% DBSA, 50-70% kerosene, and  
15 2-7% TS polymer containing S.

11. The process defined in any one of claims 2 to 9, wherein the conductivity enhancer is a reagent that contains 40-50% toluene, 0-5% propan-2-ol, 5-15% DINNSAA  
20 (dinonylnaphthasulphonic acid), 15-30% solvent naphta, 1-10% TS polymer containing N, and 10-20% polymer containing S.

12. The process defined in any one of claims 2 to 9,  
25 wherein the conductivity enhancer is a reagent that contains 50-65% toluene, 5-10% heavy aromatic naphtha, 1-10% DBSA, less than 10% benzene, 11-30% TS polymers, and less than 5% propan-2-ol.

30 13. The process defined in any one of claims 2 to 9, wherein the conductivity enhancer is a reagent that contains 30-60% kerosene, 10-30% solvent naphta, 10-30% DINNSA, 1-5% naphthalene, 1-5% propan-2-ol, and 1-5% TS polymer containing N.

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14. The process defined in any one of the preceding claims wherein the organic solvent is a narrow-cut

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kerosene and the extractant is an oxime which is dissolved in the solvent and the amount of oxime is between 5-25% by volume of the total volume of oxime and narrow cut kerosene.

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15. The process defined in claim 14 wherein the amount of oxime in the narrow cut kerosene is between 5-15% by volume of the total volume of oxime and narrow cut kerosene.

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16. An organic solvent for extracting a metal, such as copper, from an aqueous medium in a solvent extraction process, which solvent includes a combustible organic solvent, such as a narrow-cut kerosene, a non-ionic

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extractant, and a conductivity enhancer, and the conductivity enhancer is a reagent that contains 10-20% toluene, 60-70% kerosene, and 2-7% solvent naphtha, and 2-8% DBSA (dodecylbenzenesulphonic acid).

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17. An organic solvent for extracting a metal, such as copper, from an aqueous medium in a solvent extraction process, which solvent includes a combustible organic solvent, such as a narrow-cut kerosene, a non-ionic extractant, and a conductivity enhancer, and the

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conductivity enhancer is a reagent that contains 10-20% toluene, 2-8% DBSA, 50-70% kerosene, and 2-7% TS polymer containing S.

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18. An organic solvent for extracting a metal, such as copper, from an aqueous medium in a solvent extraction process, which solvent includes a combustible organic solvent, such as a narrow-cut kerosene, a non-ionic extractant, and a conductivity enhancer, and the conductivity enhancer is a reagent that contains 40-50% toluene, 0-5% propan-2-ol, 5-15% DINNSAA (dinonylnaphthasulphonic acid), 15-30% solvent naptha, 1-10% TS polymer containing N, and 10-20% polymer containing

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S.

19. An organic solvent for extracting a metal, such as copper, from an aqueous medium in a solvent extraction process, which solvent includes a combustible organic solvent, such as a narrow-cut kerosene, a non-ionic extractant, and a conductivity enhancer, and the conductivity enhancer is a reagent that contains 50-65% toluene, 5-10% heavy aromatic naphtha, 1-10% DBSA, less than 10% benzene, 11-30% TS polymers, and less than 5% propan-2-ol.

20. An organic solvent for extracting a metal, such as copper, from an aqueous medium in a solvent extraction process, which solvent includes a combustible organic solvent, such as a narrow-cut kerosene, a non-ionic extractant, and a conductivity enhancer, and the conductivity enhancer is a reagent that 30-60% kerosene, 10-30% solvent naphta, 10-30% DINNSA, 1-5% naphthalene, 1-5% propan-2-ol, and 1-5% TS polymer containing N.